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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/835,329 | 04/17/2001 | Makoto Sato | 862.C2201 | 5316 |

5514 7590 07/05/2005

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EXAMINER

PATEL, KANJIBHAI B

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/835,329 ✓

Applicant(s)

SATO ET AL.

Examiner

Kanji Patel

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 and 32-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-30, 33, 35 and 37 is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-12, 22, 32, 34, 36 is/are rejected.
- 7) ☒ Claim(s) 9-10, 13-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. Applicant's amendment filed on April 11 2005 has been entered and made of record.

In response to applicant's amendment to claims 36-37 and cancellation of claims 38-39, the rejection under 101 has been withdrawn.

The indicated allowability of claims 1-30 and 32-35 is withdrawn in view of the newly discovered reference(s) to Li et al. (US 6,580,834 B2). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8, 11-12, 22, 32, 34 and 36 are rejected under 35 USC 103(a) as being unpatentable over the combination of Li et al. (hereinafter referred to as Li) (US 6,580,834 B2) and Kennedy et al. (hereinafter referred to as Kennedy) (US 6,512,853 B2).

For claim 1, Li discloses an image processing system for encoding and decoding an image (figure 1), comprising:

an encoding device (at least 135 in figure 1 is a encoding device) for encoding the image in units of bit planes (figure 13; at least column 10, lines 17-27) to generate a code sequence; and

a decoding device (at least 185 in figure 1 is a decoding device) for decoding the code sequence in units of bit planes (figure 16; column 11 line 65 to column 12 line 9) to generate the image,

Li does not clearly disclose that noise on the image is removed by deleting data of bit planes of levels lower than a lower-limit bit plane in said encoding device and/or said decoding device. However, in an analogous art, Kennedy discloses a method and apparatus for compressing digital image data comprising noise on the image is removed by deleting data of bit planes of levels lower than a lower-limit bit plane in said encoding device and/or said decoding device (column 11, lines 33-55) Keneddy explains that the bit plane entropy statistics can be used to determine the number of least significant bits (two least significant bits in this case providing lower limit bit plane) to be separated from each pixel to reduce noise to an optimum level. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the

Li. Reference by including the teaching of Kennedy because such a modification will provide if noise is present, the noise will be separated from each pixel, and this is achieved by separating the least significant bit or bits from the grayscale value of the pixels and the separated noise bits are stored uncompressed so that they can be replaced during decompression of the image as mentioned by Kennedy at column 9 line 64 to column 10 line 3 .

For claim 2, Kennedy discloses the system wherein the lower-limit bit plane is determined on the basis of information that pertains to the image sensing situation (column 10, lines 36-50).

For claim 3, Kennedy discloses the system wherein the image to be encoded by said encoding device is an X-ray image, and the information that pertains to an image sensing situation is an X-ray dosage (column 10, lines 36-50).

For claim 4, Li discloses the system wherein said encoding device performs discrete wavelet transformation (figures 6-10).

For claim 5, Kennedy discloses the system wherein said decoding device deletes data of bit planes of levels lower than the lower-limit bit plane, of bit planes which belong to a predetermined subband (column 9 line 64 to column 10 line 3).

For column 6, Li discloses the system wherein the predetermined subband is a subband other than the lowest-frequency subband (figures 6A, 7A, 9A).

For claim 7, Kennedy discloses the system wherein a bit plane decoding process is aborted at the lower-limit bit plane, and bits of transform coefficients

contained in all subsequent bit planes up to a least significant bit plane are set at zero (column 11, lines 33-55).

For claim 8, Li discloses the system wherein said encoding device generates the code sequence by decomposing transform coefficients generated by computing discrete wavelet transforms of the image into bit planes corresponding in number to the transform coefficients, and encoding in units of bit planes (figure 13).

For claim 11, Kennedy discloses the system further comprising an input device for sensing and inputting an image to be encoded by said encoding device (figure 2, step 1).

For claim 12, Li discloses the system further comprising an image display device for displaying the image decoded by said decoding device (element 176 in figure 1).

For claim 22, Li discloses the system wherein said encoding device generates the code sequence by forming layers using only bit planes not less than the lower-limit bit plane, and combining the layers (figure 13).

For claims 32, 34 and 36 see the rejection of claim 1 above.

Allowable Subject Matter

3. Claims 9-10 and 13-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 23-30, 33, 35 and 37 are allowed.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday to Thursday from 8:00 am to 6:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kanji Patel
AU 2625
June 26, 2005


KANJIBHAI PATEL
PRIMARY EXAMINER